

Translation

PATENT COOPERATION TREATY

PCT/DE2003/000107



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 4973 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2003/000107	International filing date (day/month/year) 16 January 2003 (16.01.2003)	Priority date (day/month/year) 18 January 2002 (18.01.2002)
International Patent Classification (IPC) or national classification and IPC G01D 5/39, 5/48		
Applicant AMEPA GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 26 July 2003 (26.07.2003)	Date of completion of this report 13 July 2004 (13.07.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE2003/000107

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-11, as originally filed
 pages, filed with the demand
 pages, filed with the letter of
- ☒ the claims:
 pages, as originally filed
 pages, as amended (together with any statement under Article 19
 pages, filed with the demand
 pages 1-10, filed with the letter of 20 October 2003 (20.10.2003)
- ☒ the drawings:
 pages 1/3-3/3, as originally filed
 pages, filed with the demand
 pages, filed with the letter of
- ☐ the sequence listing part of the description:
 pages, as originally filed
 pages, filed with the demand
 pages, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
 These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations**1. Reference is made to the following documents:**

D1: US-A-5 610 346 (STELTS PHILIP D) 11 March 1997
(1997-03-11)

D2: US-A-4 590 466 (WIKLUND KLAS R ET AL) 20 May
1986 (1986-05-20)

D3: DE 199 49 918 A (GRUNDIG AG) 26 April 2001
(2001-04-26)

2. NOVELTY**2.1 Claim 1 describes a method which uses a measuring arrangement such as disclosed in claim 10.**

Claim 5 describes a device which also uses the
aforementioned measuring arrangement.

The following observations are made regarding the
measuring arrangement disclosed in claim 10:

2.2 Document D1 is considered the prior art closest to the subject matter of claim 10 and discloses (the references between parentheses refer to that document):

- a measuring arrangement for introducing into molten metal and for generating measurement data relating to at least one characteristic of the molten metal (column 1, lines 13 to 20 and column 2, lines 44 to 46).

The subject matter of claim 10 thus differs from the measuring arrangement known from D1 in that:

- when the measuring arrangement is floating in the molten metal a transmitting antenna integrated into the measuring arrangement is disposed at least partly above a layer of slag on the molten metal; and
- the measurement data is wireless transmitted from the measuring arrangement to the processing arrangement.

The subject matter of claim 10 is thus novel (PCT Article 33(2)).

2.3 The subject matter of method claim 1 and of device claim 5 is also novel (PCT Article 33(2)) (see the comments under points 2.1 and 2.2).

2.4 Claims 2 to 4 and 6 to 9 are dependent on claims 1 and 5, respectively, and therefore likewise meet the PCT requirements for novelty.

3. INVENTIVE STEP

3.1 The present invention can be considered to address the problem of reducing the outlay in terms of apparatus, control technology and organisation when determining characteristics of molten metal.

A person skilled in the art is familiar with the above problem.

The solution to this problem proposed in claim 10 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons:

Document D1 discloses a measuring arrangement for dropping into a molten metal, the measurement data being wire-bound transmitted to an evaluation arrangement.

Document D2 describes a measuring arrangement for the wireless transmission of measurement data from a blast furnace, the measuring arrangement and the transmitting antenna thereof being completely submerged in the partly clumpy material.

The known prior art documents, even in combination, do not suggest designing the measuring arrangement for direct wireless transmission such that it is possible to transmit from an electroconductive molten metal.

Consequently, the subject matter of claim 10 involves an inventive step and the claim meets the requirements of PCT Article 33(3).

3.2 The subject matter of method claim 1 and of device claim 5 also involves an inventive step (see the comments under point 3.1) and the claims meet the requirements of PCT Article 33(3).

3.3 Claims 2 to 4 and 6 to 9 are dependent on claims 1 and 5, respectively, and therefore likewise meet the

PCT requirements for inventive step.

4. INDUSTRIAL APPLICABILITY

Claims 1 to 10 meet the requirements of PCT Article 33(4).